

ABSTRACT OF THE DISCLOSURE

In a reciprocating (RS) injection unit environment, as shown in Figure 1, a controller of the injection unit is arranged to continuously rotate the screw during both conventional plasticizing operation and shot injection. In this way the RS unit is more efficient, utilizing less energy and producing greater resin output. The injection unit includes a non-return valve adjacent a nozzle, which non-return valve is either configured to rotate with the screw to reduce wear or presented as a ball check style non-return valve. In an injection molding environment, the rotating screw includes flights that allow granules of resin to melt and mix in spaces between adjacent flights, but the flights are arranged substantially to inhibit excessive displacement of resin around the flights.